

Applicants: Pamela C. Yelick et al.  
Methods & Compositions for Culturing a Biological Tooth  
Atty.: John P. Iwanicki, Reg. No. 34,628  
BANNER & WITCOFF, LTD. (617) 227-7111  
28 State Street, 28<sup>th</sup> Floor, Boston, MA 02109  
Attorney Docket No. 10498-00031 SHEET 1 OF 11

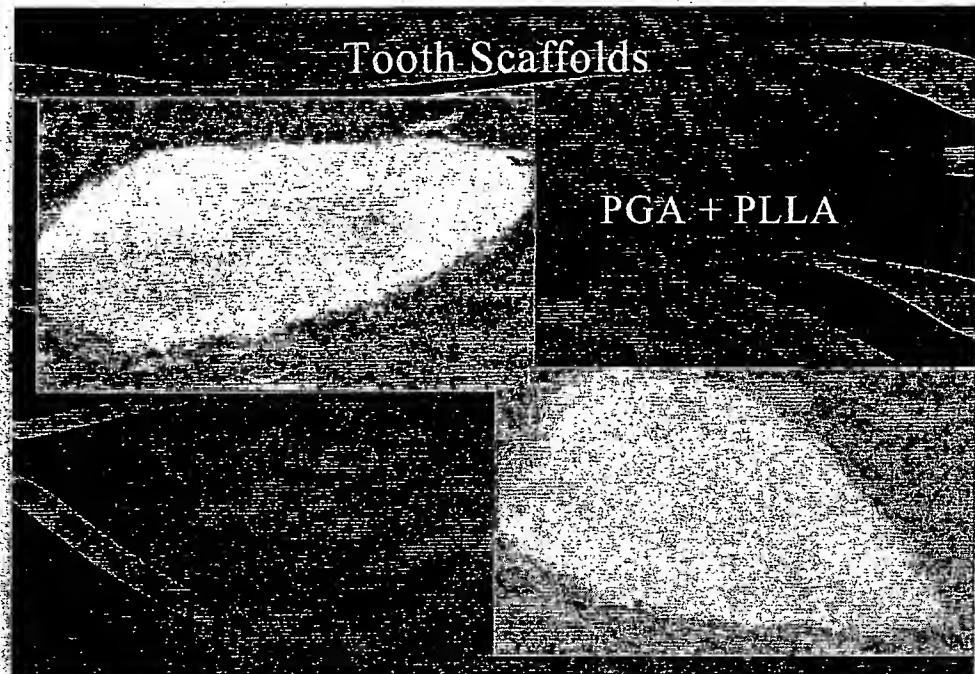


FIG. 1

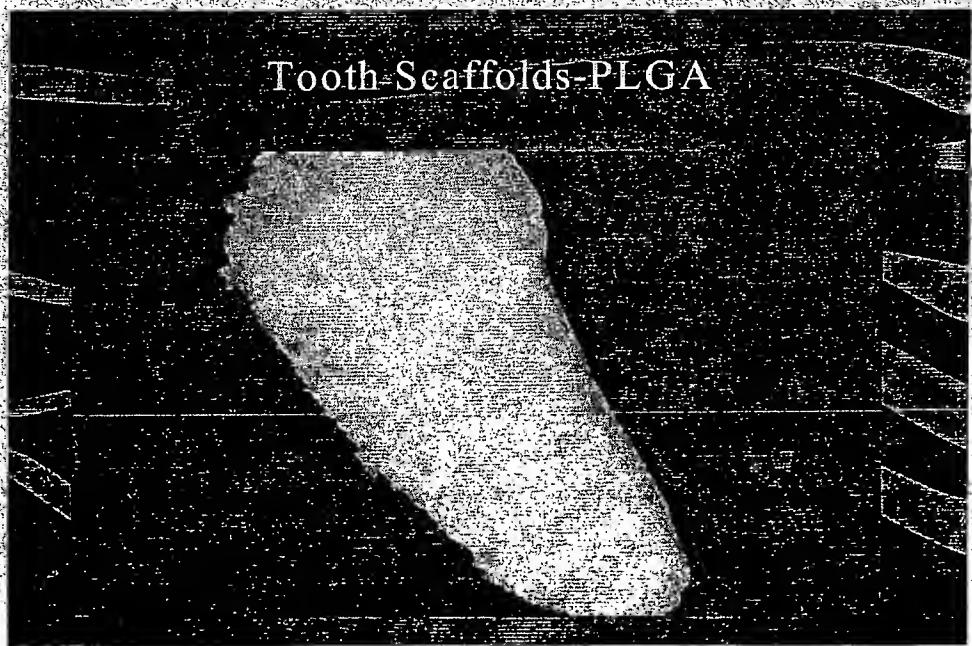


FIG. 2

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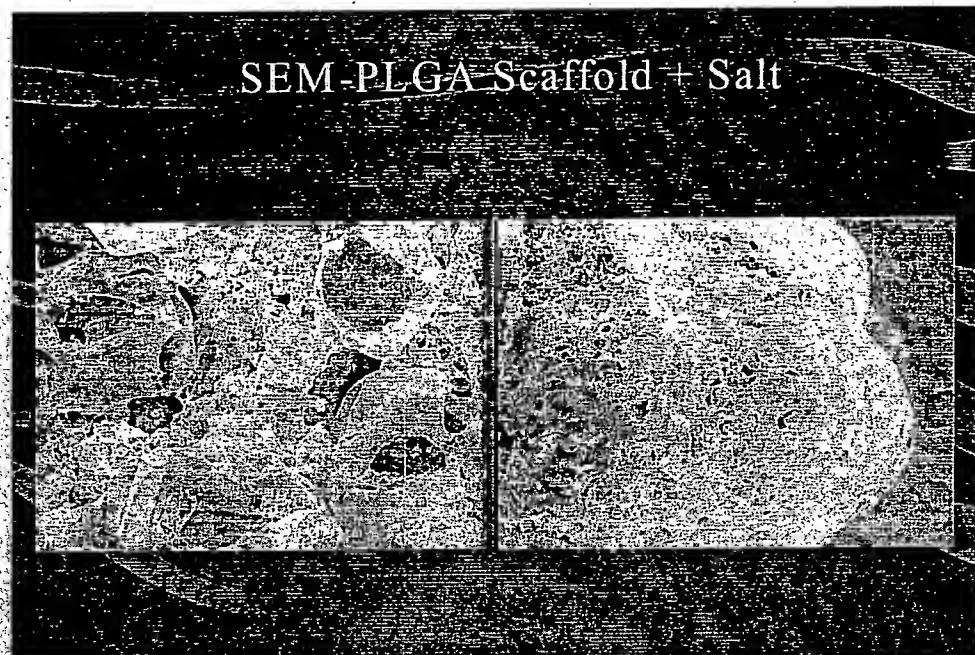


FIG. 3

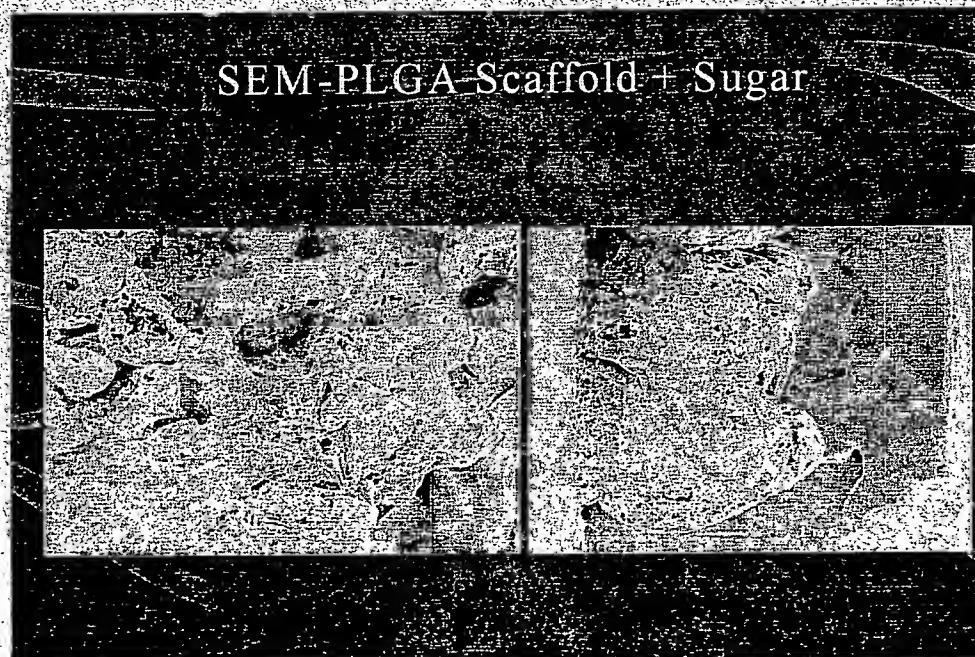


FIG. 4

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Removal of Porcine Third Molar



FIG. 5

Removal of Porcine Third Molar

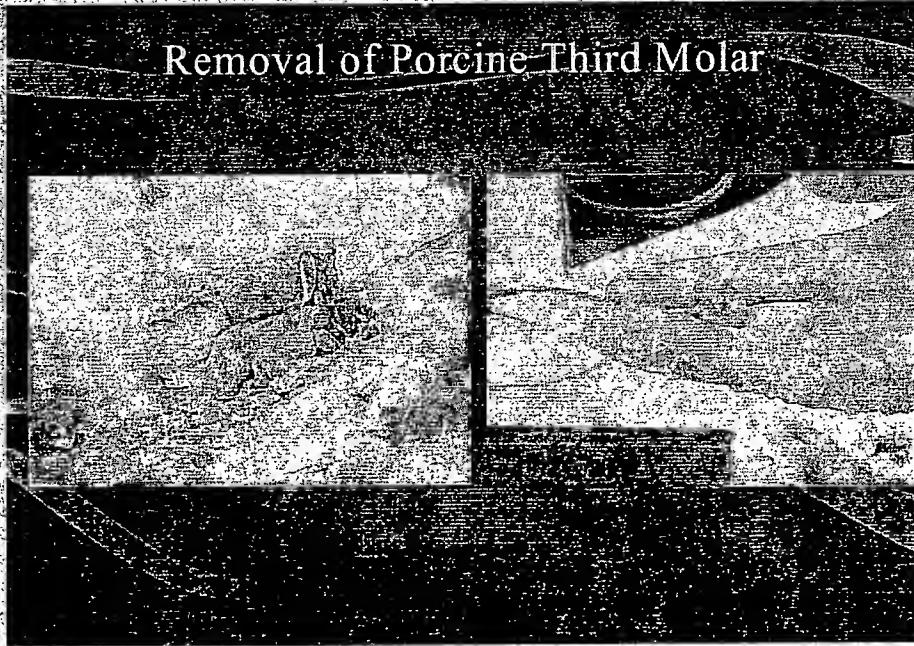
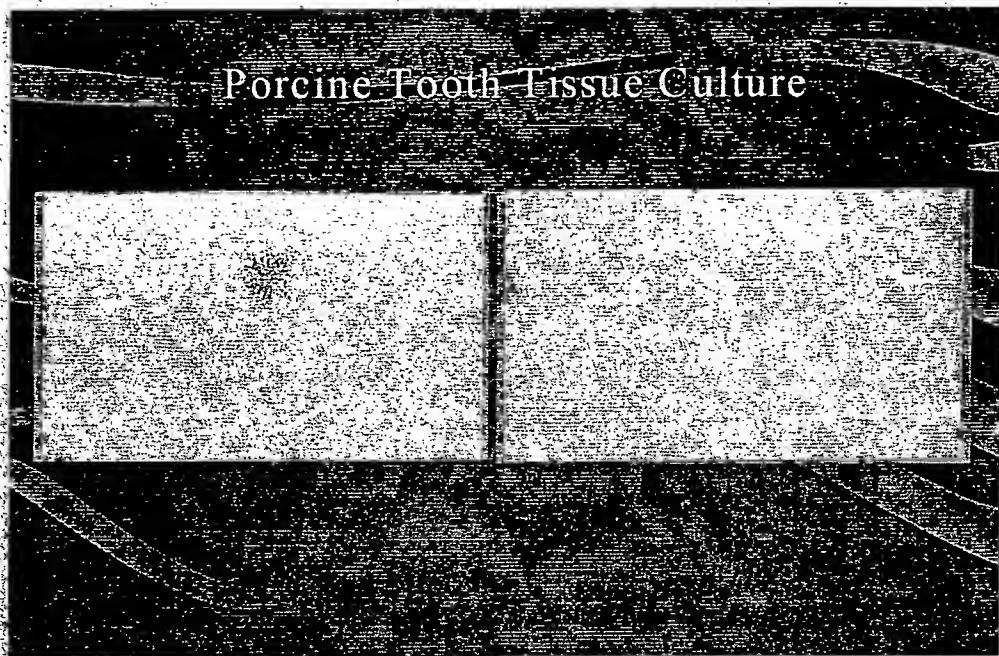


FIG. 6

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**FIG. 7**



**FIG. 8**

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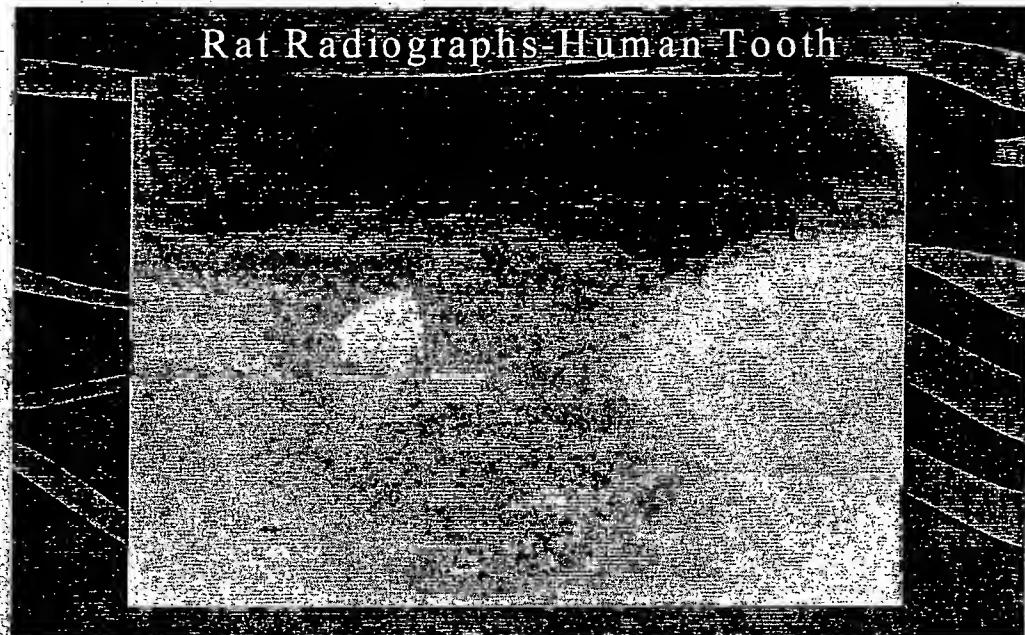


FIG. 9

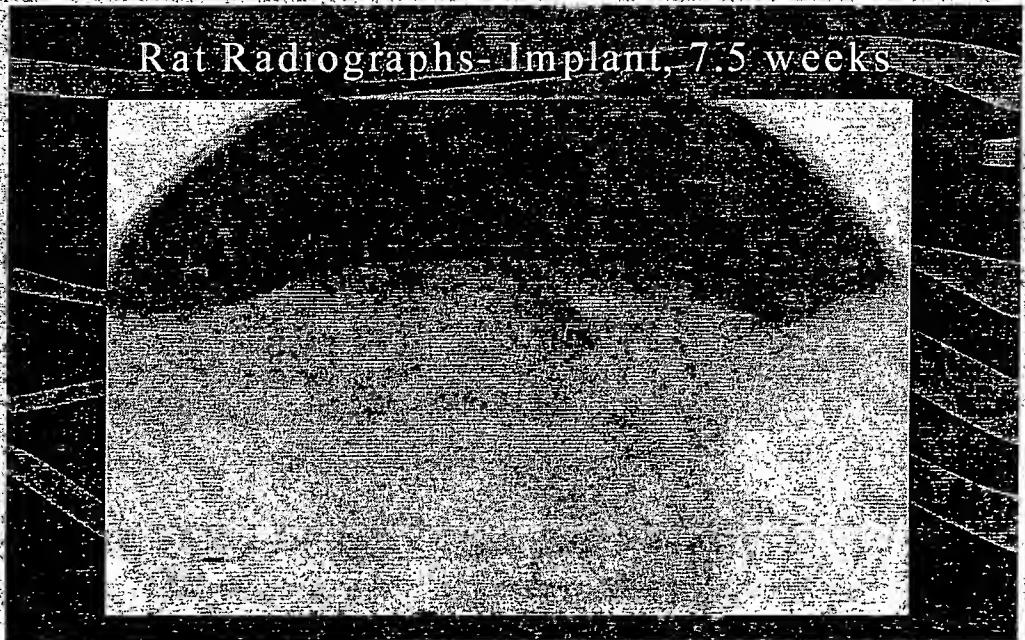


FIG. 10

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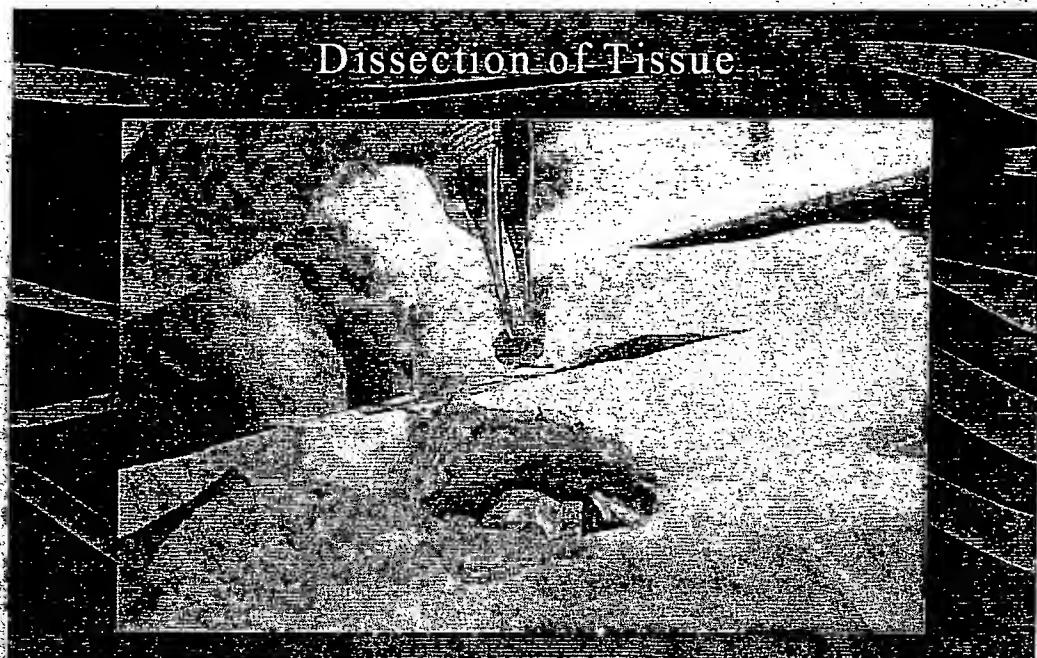


FIG. 11

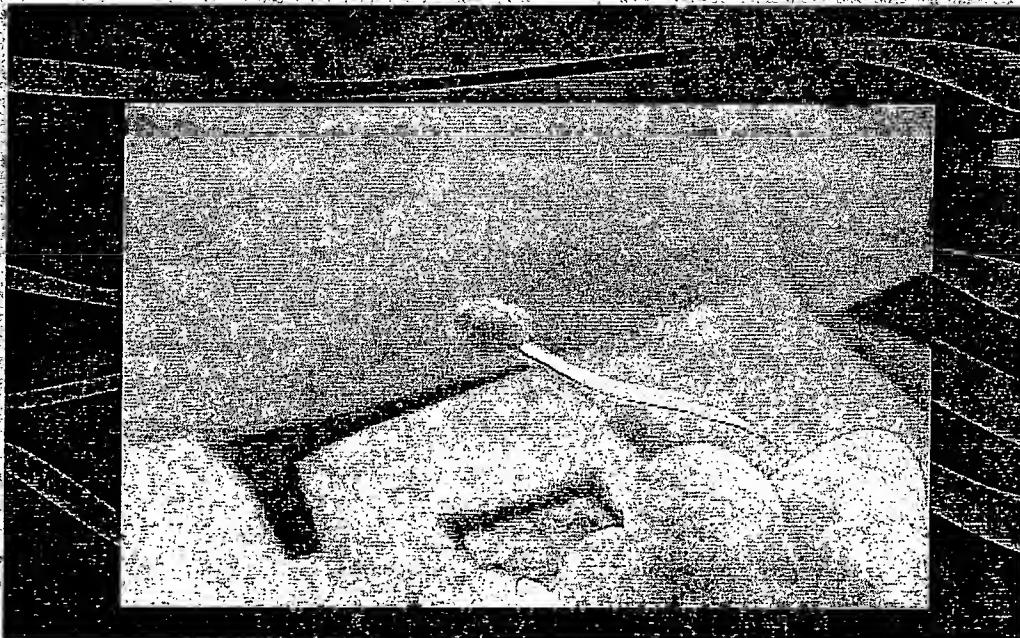


FIG. 12

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Dissected Tooth Tissue Cysts- 7.5 Weeks

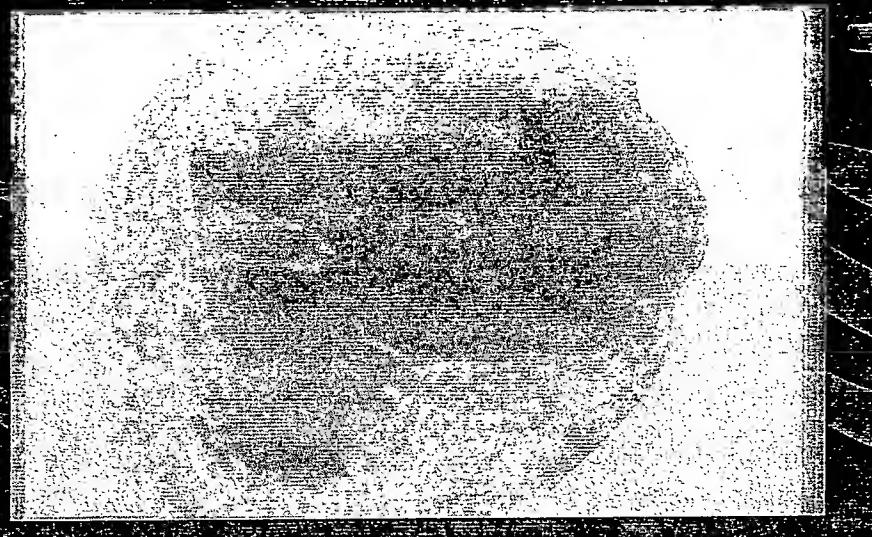


FIG. 13

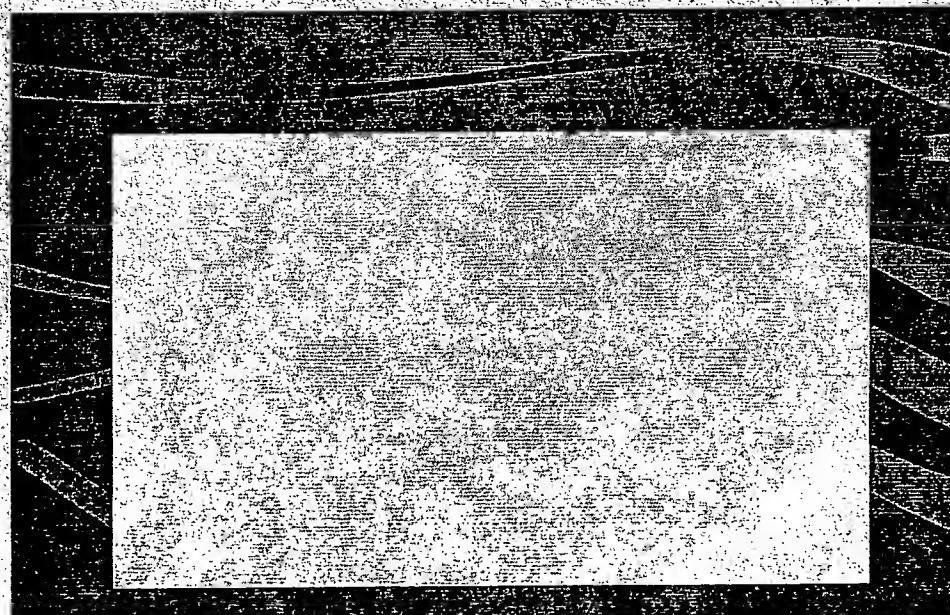
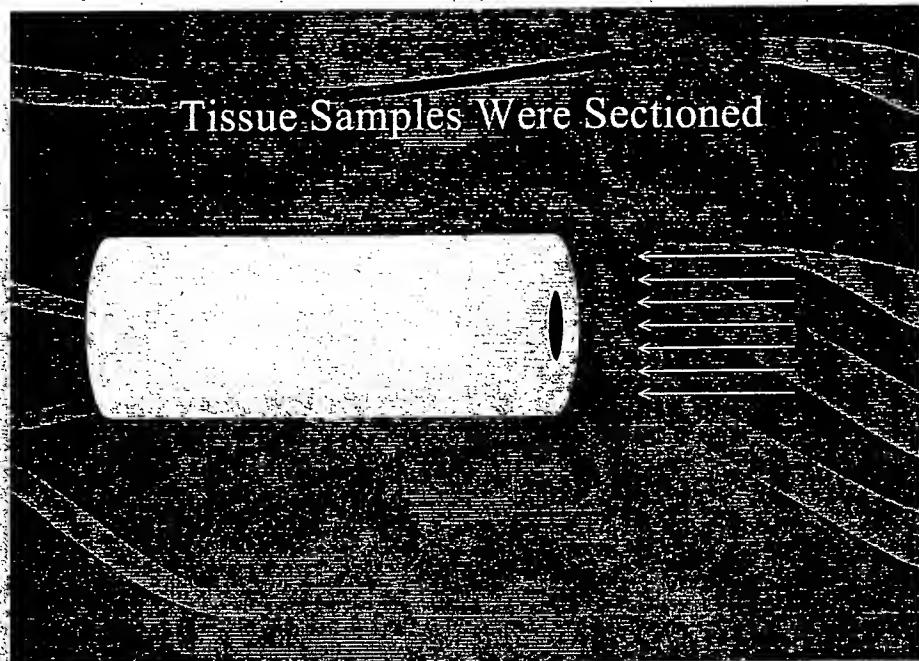
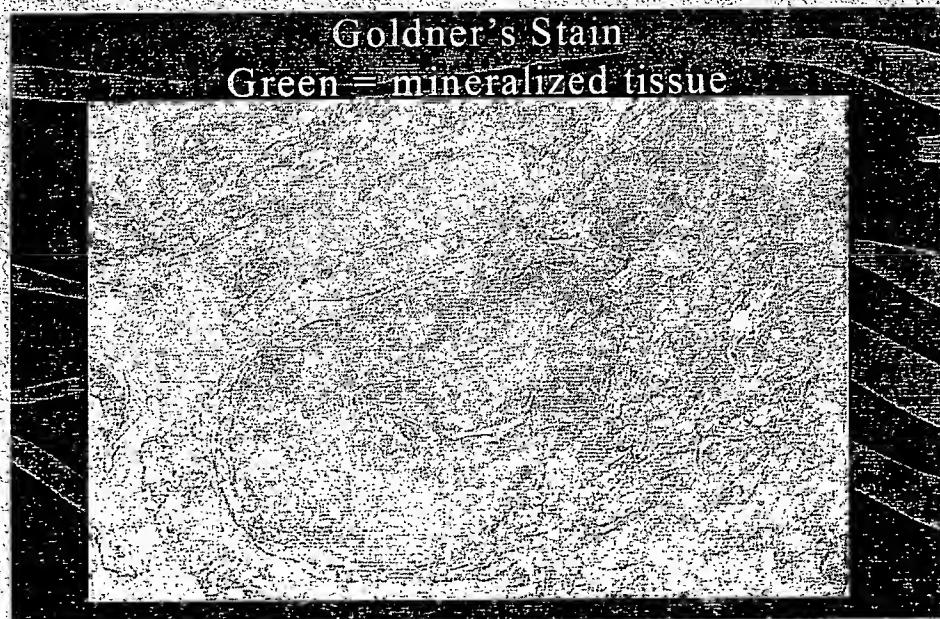


FIG. 14

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**FIG. 15**



**FIG. 16**

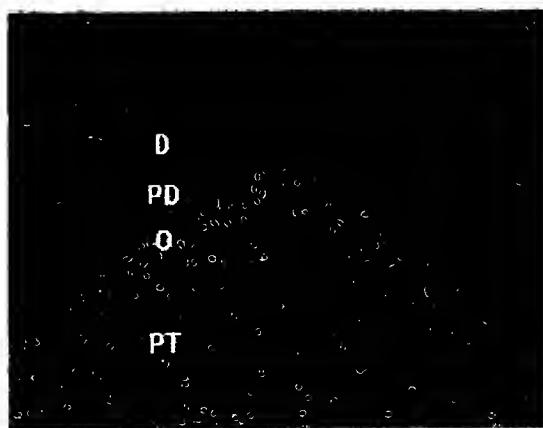


Figure 17. Cell seeded incisor scaffold 20 weeks post-implantation. Cusp tip of a developing tissue engineered tooth. Dentin (D), Pre-Dentin(PD), Odontoblast (O), and Pulp Tissue (PT).

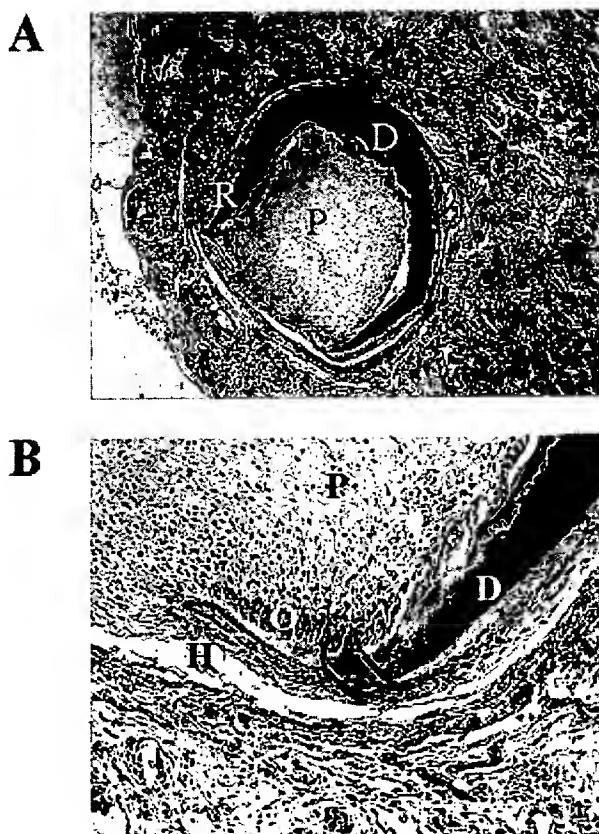


Figure 18. Histological section of 20-week tooth bud stained with Hematoxylin and eosin then counterstained by the method of Von Kossa. A. The 20-week bud. Mineralized dentin stains dark brown, predentin stains pink, and cell nuclei stain purple. B. Root tip showing columnar odontoblasts and Hertwig's root sheath. D=dentin, H=Hertwig's root sheath, O=odontoblasts, P = Pulp cells, R=Root tips.

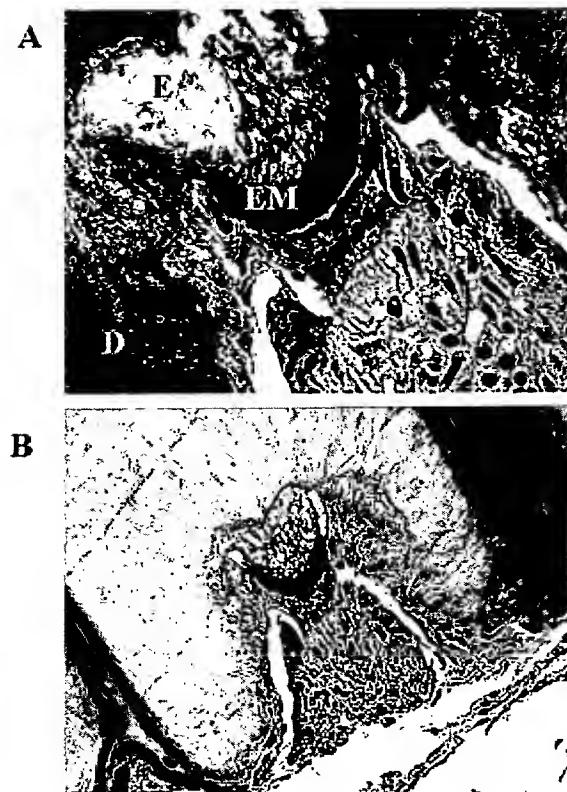


Figure 19. Engineered tooth tissues with dentin, enamel and ameloblasts. 19A: Stained With hematoxylin and eosin. 19B: Stained by Goldner's method. A=ameloblasts. D=dentin matrix, E = decalcified enamel, EM= enamel matrix. Note that the dentin matrix is bright blue and the enamel matrix is red when stained by the method of Goldner.

FIGURE 20

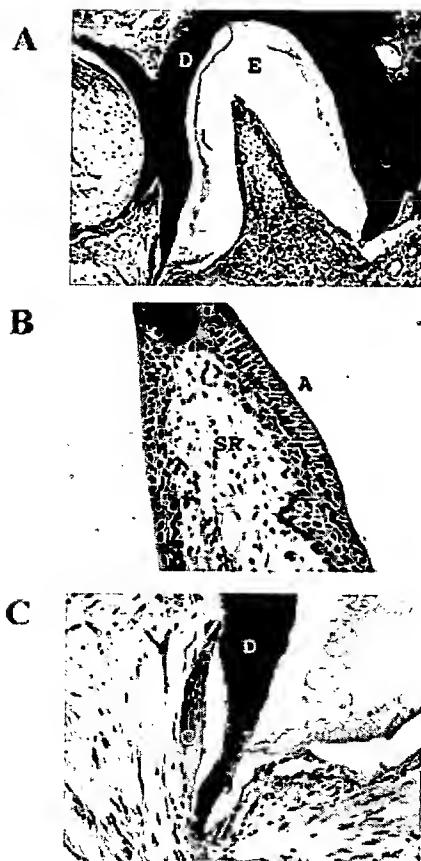


Figure 20. Histological section of a 30-week implant stained with hematoxylin and eosin. Fig 20A: the 30-week implant with demineralized enamel interior to the dentin. Fig. 20B: ameloblast cell layer adjacent to enamel space. Fig. 20C: cementum with embedded nuclei of putative cementoblasts. A=ameloblasts, C=cementum, D=dentin, E=enamel, SI=stratum intermedium, SR= stellate reticulum